



**SECOND TERM GLOBAL TEST**  
**4º ESO**



**Exercise 1: (1.5 ptos)** Find the domain of the following functions:

a)  $f(x) = \frac{\sqrt{x-2}}{x^2-16} \rightarrow \text{Dom } f = [2, 4) \cup (4, +\infty)$

b)  $f(x) = \frac{3x+5}{\sqrt{x^2-5x+6}} \rightarrow \text{Dom } f = (-\infty, 2) \cup (3, +\infty)$

**Exercise 2: (1.75 ptos)** Work out:

a)  $\lim_{x \rightarrow 2} \frac{x^2 - 7x + 10}{x^2 - 4} = \frac{-3}{4}$

b)  $\lim_{x \rightarrow +\infty} \frac{4x^3 - 5x^2 + 8x - 2}{2x^3 + 7x - 1} = 2$

c)  $\lim_{x \rightarrow \infty} \left( \frac{5x^2 - 8x}{x - 3} - 5x \right) = 7$

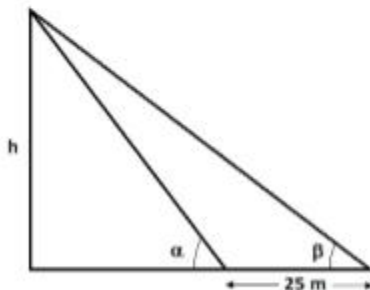
**Exercise 3: (0.75 ptos)** Find the **general** equation of the straight line that goes through the points  $P(1, 2)$  and  $Q(3, -8)$   $5x + y - 7 = 0$

**Exercise 4: (1 pto)** Find the horizontal and vertical asymptotes of the following functions:

a)  $f(x) = \frac{3x-2}{x^2-9} \rightarrow \begin{cases} \text{HA} & y = 0 \\ \text{VA} & x = \pm 3 \end{cases}$

b)  $f(x) = \frac{2x+11}{3x-4} \rightarrow \begin{cases} \text{HA} & y = 2/3 \\ \text{VA} & x = 4/3 \end{cases}$

**Exercise 5: (1.25 ptos)** If  $\alpha = 52^\circ$  and  $\beta = 35^\circ$ , find the value of  $h$   $h = 38.65 \text{ m}$



**Exercise 6: (1 pto)** Work out the value of  $\log_2 \frac{\sqrt[2]{64} \cdot \sqrt[3]{4}}{\sqrt[5]{16}} = \frac{76}{105}$



**Exercise 7: (1 pto)** If  $\tan \alpha = 1.2$  find the values of  $\sin \alpha$ ,  $\cos \alpha$ , and the angle  $\alpha$

$$\cos \alpha = 0.64$$

$$\sin \alpha = 0.77$$

$$\alpha = 50.19^\circ$$

**Exercise 8: (1.75 ptos)** Sketch the graph of the following piecewise function and with a different color or a dashed line, sketch the graphic of  $|f(x)|$ :

$$f(x) = \begin{cases} x^2 - 4 & -3 \leq x < 1 \\ \log_2 x & x \geq 1 \end{cases}$$

